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1.3.95

Dear Abner,

I was very sorry we were not able to continue our discussions, after the unfortunate mishap with my back. It is slowly improving, but I am still not able to give my lectures. However Pagonis and Dickson have nobly stood in for me, and their lectures seem proving quite a hit, more popular with the students than my own!

It was very nice to see you again, and I hope you enjoyed your visit as much as we enjoyed having you.

I read through your 'theorem' that Jeremy passed on to me. I agree with everything you say. My condition * $\forall P_2 \exists P_1$ s.t. $\langle P_1, P_2 \rangle_\Psi = \langle P_1 \rangle_\Psi$ is true iff Ψ is entangled, and the Bell-Kochen-Specker theorem follows iff Ψ is entangled. So * is necessary and sufficient for

P.T.O.

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the Baby R-S theorem.

This is what I claimed in 'More Ado--' - sufficiency on p-12, and necessity as Theorem 4 on p. 14.

The reason I proved Theorem 4 in such an apparently roundabout way was the following.

I could have argued simply that if * were false and hence 4 not entangled, then the Baby R-S theorem would be false. So, contrapositively Baby R-S $\Rightarrow$ *.

But I wanted to give a 'direct' proof of *, the using only Baby R-S, which could then be lifted straight back to the field theory case, which was the one I was really interested in. This is, heuristically, how I hit on the idea that the vacuum correlations in the field theory case are maximal in the ~~one~~ sense of * (modulo suitable epsilonics!)

My discussion of Baby R-S in 'More Ado--' was really meant to explain to the reader how I came to think that the main result of the paper (Theorem 4 on p. 18) was a plausible story to try and prove!

Work very hard wishes Michael